

CLAIMS

1. A method for concealing errors detected in an input audio bit stream, the digital audio bit stream configured as a series of packets, said method comprising the steps of:
- detecting a first beat and a subsequent plurality of beats in the audio bit stream;
 - defining a first inter-beat interval extending between said first beat and a $(k+1)^{\text{th}}$ subsequent beat;
 - storing at least a portion of the audio bit stream occurring within said first inter-beat interval;
 - detecting an erroneous audio segment occurring in a second inter-beat interval extending between said $(k+1)^{\text{th}}$ beat and a $(2k+1)^{\text{th}}$ subsequent beat; and
 - replacing at least a first part of said erroneous audio segment with a corresponding part of said stored digital audio bit stream portion.
2. A method as in claim 1 wherein 'k' is an integer greater than or equal to 2.
3. A method as in claim 1 wherein said stored audio bit stream portion includes at least one packet positioned on at least one said beat.
4. A method as in claim 1 wherein said step of detecting a first beat comprises a step of computing the variance of the audio bit stream using decoded IMDCT coefficients.
5. A method as in claim 1 wherein said step of detecting a first beat comprises the step of utilizing a window-switching pattern.

1 6. A method as in claim 1 wherein said step of detecting a first beat comprises a
2 step of computing the envelope of the audio bit stream using decoded IMDCT
3 coefficients.

1 7. A method as in claim 1 wherein said step of detecting a first beat comprises
2 the steps of computing the variance of the audio bit stream using decoded IMDCT
3 coefficients and utilizing a window-switching pattern.

1 8. A method as in claim 1 wherein said step of storing at least a portion of the
2 audio bit stream includes a step of storing said portion in a circular first-in first-out
3 (FIFO) buffer.

1 9. A method for error concealment in a process of digital audio streaming, said
2 method comprising the steps of:

3 providing a bitstream;
4 detecting at least two beats extracted from said bitstream, said beats extracted
5 from a signal having repetitive sequences; and
6 determining an inter-beat interval between said at least two beats.

1 10. A method as in claim 9 wherein said signal having repetitive sequences
2 comprises at least one signal from the group consisting of a music signal and an audio
3 signal.

1 11. A method as in claim 9 wherein said signal having repetitive sequences
2 includes an error pattern.

1 12. A method as in claim 9 wherein said signal having repetitive sequences
2 includes a packet loss from an IP network and a burst error from a wireless channel.

1 13. A method as in claim 9 further comprising the step of decoding at least a
2 portion of said signal having repetitive sequences.

1 14. A method as in claim 9 wherein said signal having repetitive sequences
2 comprises at least one element from the group consisting of a rhythm element, a beat
3 element, and a bar element.

1 15. A method as in claim 11 further comprising the step of replacing said error
2 pattern with music content.

1 16. A method as in claim 9 further comprising the step of replacing one said beat
2 with another said beat from a preceding bar.

1 17. A method for error concealment in a process of digital audio streaming in a
2 wireless terminal, said method comprising the step of storing two consecutive inter-
3 beat intervals of the compressed audio bitstream

1 18. A memory for error concealment in a process of digital audio streaming in a
2 wireless terminal, said memory comprising:

3 storing means for storing a signal history of musical beats of two consecutive
4 inter-beat intervals of the compressed audio bitstream.